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FRONT COVER

Chilean Farmer

Countryman of southern Chile. Small independent farmers have been present in Chile for a long time and now probably make up a greater proportion of the farm population than ever.

BACK COVER

Chile: Agricultural Zones and Annual Rainfall

Most of Chile's farms are located in the central part of the country. Here also are two quite different forms of land tenure—the very large holdings, an inheritance of the early Spanish settlers, and, to the south of them, the more recently developed farms of European immigrants, operated more like farms in the United States.

Credit for photos is given as follows: pp. 89, 91, P. M. Davenport; pp. 99, 100, 102, F. L. Timmons.

NEWS NOTES

International Conferences On Wheat and Cotton

Two important international meetings are claiming the interested attention of the United States and other countries concerned with world trade in wheat and cotton.

The International Wheat Council, which convened in London on April 17, is in the midst of its sessions for considering renewal of the International Wheat Agreement when it expires on July 31, 1953. The present Agreement, which was authorized to run for 4 years, was negotiated early in 1949 to assure supplies of wheat to importing countries and markets for wheat to exporting countries at equitable and stable prices. It now involves 46 participating countries and covers about two-thirds of all the wheat and flour moving in world trade. Of these countries, four—the United States, Australia, Canada, and France—are exporters, with export quotas of 255,149,000 bushels, 232,979,000 bushels, 88,700,000 bushels, and 4,089,000 bushels, respectively. The other members are importers with guaranteed purchases totaling an amount equal to the total of the export quotas.

The International Cotton Advisory Committee will meet in Rome this month, opening its 11th Plenary Meeting on May 17 for its annual review of the world cotton situation. It is expected that the Committee will discuss the possibility of establishing an International Cotton Agreement.

The United States is a member of both world commodity groups.

FOREIGN AGRICULTURE ALICE FRAY NELSON, EDITOR

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Land Tenure in Chile

by P. M. DAVENPORT

Chile's land tenure pattern is, by and large, a combination of the old and the new. Not only does the country have large land holdings, inherited from the Spanish Conquistadores, but it has smaller, newer farms, owned and operated by immigrants from northern Europe.

The number of farms in Chile is increasing and the area per holding is declining, but most of the change is said to be occurring through the breaking up of medium-sized farms into smaller units. Although in the nineteenth century entailment of estates was abolished and many of the large entailed holdings were broken up, little subdivision of the largest farms is now taking place; consequently, the inequality in the distribution of land is increasing. Chilean law requires, however, that real property be divided in equal parts among heirs, thus facilitating, in time, the breaking up of large fundos (estates).

Agitation for land reform was prevalent in the decade from 1936 to 1946 but it has died down, at least temporarily. No political movement for land reform directed at the large landowners is under way in Chile today, although the platforms and policy statements of the center and leftist parties frequently express the desirability of some such measure. And there seems to be a general understanding of the need for improving the lot of the farm worker and for making him a well-educated, productive member of society.

Economic Aspects

Patterns of land tenure are closely associated with the economic conditions and industrial progress of a country. How much pressure there is on the land depends on how much choice the working population has in the matter of jobs—that is, choice between a job on a farm and a job in a factory.

Chile is in an intermediate stage among the nations of the world in its levels of living, education, industrialization, and agricultural development. It is still far from attaining the levels of Canada, Western Europe, and the United States; yet it is ahead of most Latin American nations and the countries of eastern Europe and Asia. But Chile possesses valuable mineral resources, an invigorating, temperate-zone climate, and a homogenous population of European blood, all of which contribute to substantial progress through greater industrialization and higher per capita productivity.

In providing a setting for a consideration of the land tenure situation of Chile, some comparisons between Chilean and United States conditions may be helpful.

In 1948 the average income per person engaged in agriculture was $2,067 in the United States and $457 in Chile. If Chilean farms were operated intensively enough to permit farm income per acre to reach the level of the United States, income per farm worker would be almost doubled. However, much of the increased production per acre would have to come through heavier expenditures on fertilizers, land preparation, weed control, irrigation, etc., which would be profitable only if consumers could afford to pay the higher unit cost of the products.

Chile has 2.5 acres of cropland per capita of population compared with 2.7 acres in the United States; but because of the higher proportion of the population engaged in agriculture in Chile, less land is available per rural inhabitant than in the United States. The cultivated area per person engaged in agriculture is 38 acres in the United States and 20 acres in Chile.

The relation between agricultural and industrial wages in the two countries is also of interest in connection with pressure on the land and agrarian reform problems. In 1940 the agricultural wage rate in Chile averaged 35 percent of industrial wage rates, whereas farm wage rates in the United States were 26 percent of industrial wages. By 1948, however, the corresponding percentages were 31 in Chile and 44 in the United States. The position of the agricultural worker in the United States improved immensely as a result of the war, but the Chilean labor force remained relatively unaffected. Also, industrialization is increasing the productivity

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and consequently the pay of the factory worker in Chile to the disadvantage of the farm worker.

Chile possesses a serious problem in the great discrepancy in income between the large landowner and those who work for him and between the large farmer and the small farmer. In Chile in 1948 the average income per farm wage earner was only 28 percent of that of the farm owner, whereas the figure was 47 percent in the United States in the same year. One reason for the high United States figure in 1948 was the wartime increase in farm wage rates; in 1940 the Chilean and United States percentages were probably much closer.

Income of farm owners in Chile is less evenly distributed than in the United States. Exact statistics to permit comparison are not readily available, but the scope of the problem may be suggested by the fact that the Chilean agricultural census of 1936 shows 76 percent of farms in order of value in the hands of 5.25 percent of the farm owners. And figures from the Chilean Department of Internal Revenue indicate that in 1947 5 percent of the farms were assessed with 75 percent of the total value of all farms.

Plans to change this concentration of holdings by purchasing large farms for distribution among small holders would be complicated by the high price of land, which is not supported by similarly high prices for products of the land. High land prices are the result of the chronic inflation that has characterized recent Chilean economic history; land has had a ready market, for it has been a relatively safe investment. With industrial progress and the opening of alternative opportunities for investment, the pressure on land values may diminish. The Economic Commission for Latin America shows that between 1933 and 1949 land values in Chile increased 27 percent more rapidly than prices of crops and livestock, whereas in the United States over the same period average farm values increased 40 percent less rapidly than prices of farm commodities.

Farm Workers

The inquilino (tenant) is the modern counterpart of the Indian whose services were granted by the Spanish crown to Pedro de Valdivia and his fellow Conquistadores. Today, he still lives on the large estate and works under the supervision of the owner or administrator of the estate. Inquilinos, at least in central and southern Chile, are given the right to a small tract on the estate for growing garden crops and for grazing a few animals, but many of them make poor use of their plots. The question is raised whether the inquilinos could do better on land to which they had full title.

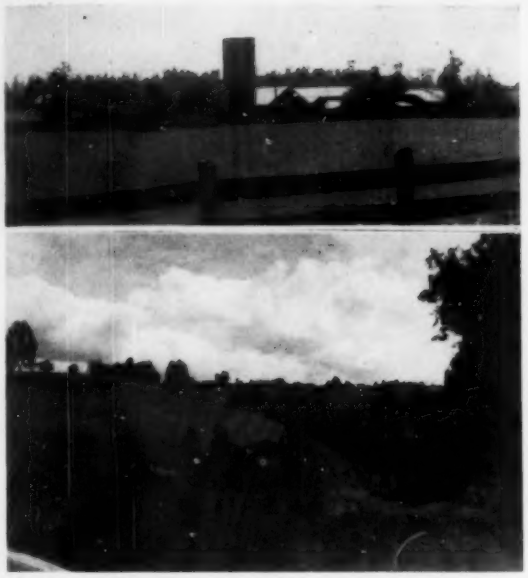
Some studies indicate that the inquilino, whose lot is relatively good, is being gradually supplanted by the itinerant day worker. Among the possible reasons for this trend may be the greater mobility of labor because of better transportation, the more careful planning required for work programs of year-round labor, the effect of mechanization, and the proportionately greater social security payments paid by employers of resident inquilinos. The life of these day workers, commonly called afuerinos, is much more difficult than that of the resident inquilino, and persons familiar with the situation view with anxiety the growth in the number of unattached farm workers.

Medieros—share croppers who have responsibility for specific tracts of land assigned to them—are of less importance in Chile now than they once were. Owners of better fundos desire closer control of operations than is possible under a share-cropping system. Rental of farms for cash is largely on the basis of the large fundo units, and very little cash renting occurs of smaller parts of fundos approaching a family-size operation.

Land Problems by Zones

The picture of a latifundian agricultural organization has frequently been presented: the wooded park surrounding the manor house, central barns and sheds; the houses of resident inquilinos with their respective garden plots; and the regular lay-out of fertile croplands with an occasional cottage used by an outlying worker. A frequent concommitant of the large farm units occupying the favorable sites is the settlement by squatters and small farmers of unfavorable locations in river bottoms, hill lands, wooded areas, etc.

Much subdivision of farm lands has occurred in Santiago Province, where urban residents with adequate financial resources have been able to pay higher prices for land for part-time residence and for intensive farming than the tract is worth to the large landowner. Possibly the problem of large holdings is greatest in the section of Chile between the cities of Talca and Los Angeles. Here, labor-intensive crops are grown. Agricultural workers



Central buildings of an estate in southern Chile, above; inquilino (tenant) cottage, below.

are numerous; their pay is low; and alternative employment is scarce. South of Los Angeles, less intensive crops are grown and need for hired farm labor is not as great. An active lumbering industry affords alternative employment.

The southern area is of more recent development than the central zone and the population is not so dense. Many of the farmers there are of German origin and manage their farms with methods that approach those of northern Europe, which are closer to those in the United States than are the Spanish farming traditions of the central zone.

The island of Chiloé is the only major small-farming zone in Chile. The organization of its agriculture, however, approaches subsistence farming.

Farther south, in the Provinces of Aysén and Magallanes, large operations are again the pattern, with sheep companies leasing government lands over wide areas. Many proposals are being made for the colonization of this area, particularly Aysén, on a small-unit basis. The principal factor delaying colonization of Aysén is the inaccessibility of the farming section; it is on the eastern slope of the Andes, and transportation of products to markets in central Chile is slow and expensive.

In the Provinces of Cautín and Arauco are remnants of the Araucanian population. These Indians cling to their old ways of life and present a special local problem. The Chilean Government does not permit them to dispose of land holdings, which are frequently very poorly farmed and are too small to support their occupants.

Chilean Moves Toward Land Reform

Chile's legislation regulating settlement of lands conquered from the Araucanians south of the long-occupied regions of central Chile was designed to fulfill the same purpose as our homestead legislation —that is, to establish the basis for a prosperous economy of medium-sized farms. Whereas the program in the United States was eminently successful, that in Chile was subject to many faults and vicissitudes. The early settlers in southern Chile were not protected from the Indians. There was much political interference and favoritism, contrary to law, in the granting of land. Various authorities issued conflicting titles to the same piece of land. Some grants created latifundia larger than those of central Chile. Much squatting of small farmers occurred without any form of title whatsoever. Probably the most beneficial phase of southern colonization was the German settlement of lands in the Provinces of Osorno and Llanquihue in the 1850's before a definite land policy had been established. Clarification of title to lands in the mid-south, as required by legislation approved in 1928, is the principal task of the Ministry of Lands and Colonization.

Organized, supervised settlement of families on small tracts developed with the formation of the Agricultural Colonization Bank in 1928. This bank has operated in the main through the purchase of large farms and the redistribution of the land among colonists, who are financed by the bank over a long period of years. In 1950 the bank reported that it had established 84 colonies on 1,054,690 acres, which is divided into 3,204 holdings. Progressive inflation has reduced the bank's capital, and the bank has begun few new projects in the past 10 years although it continues to administer existing programs.

The bank has been primarily concerned with the resettlement of Chilean citizens, but the Chilean Government is anxious to attract suitable European agricultural immigrants. The bank gives such advice and assistance as it can, but it has no funds to finance foreign immigration projects. According to reports, a colony of Belgians in Aysén has been un-

successful because they could not market their products and because of Chilean restrictions on the importation of essential farm equipment. In 1951 an Italian immigration commission organized, in cooperation with the Colonization Bank and the Chilean Development Corporation, an Italo-Chilean Immigration Corporation to buy and equip farms for settlement by selected Italian families. Some $3 million from ECA (Mutual Security Agency) funds have been made available for this program. German immigration into the Aysén region is under discussion, and the press has recently publicized plans for the coordinated development of Aysén and a more complete incorporation of this Province into the Chilean economy. One problem that arises in connection with the immigration of qualified European agriculturists, and with the education and training of Chilean country dwellers as well, is the tendency for those with greatest ability to leave the small holding allotted to them to take advantage of more lucrative opportunities elsewhere—usually in industry or commerce.

The Tenants' Institute has for a number of years tried to improve the lot of rural workers in practical ways; it has encouraged them to plant vegetable gardens, raise poultry, keep bees, and learn to repair shoes, weave, etc. The institute also engages in educational work designed to combat such evils as alcoholism and debt. It is attached to the Institute of Agricultural Economy, which in turn is associated with the Ministry of Agriculture. The program of the institute has suffered from the effect of inflation on its fixed budget. Currently there is little money to do more than publish the semi-annual *El Huaso Chileno*, a well-prepared, attractive booklet intended for rural families.

Chile's long-term plan for agricultural development, approved in 1945, is of interest in connection with land reform. Chapter VI of the plan, which deals with land policy, declares that not only latifundia but also extremely small holdings are a problem. The plan subscribes to the reasonable view that the true size of a holding cannot be measured in acres but is related to the degree of intensity with which it can be farmed. The authors advocate decrease in size of holdings in the irrigated section of the central zone to permit the more intensive operation and higher yields of which this land is capable, and they suggest the combination into single units of unremunerative small farms in dry areas, where extensive land use methods must be followed. The concrete suggestion is made that the government undertake the subdivision, as prescribed by legislation in force at the time, of large holdings within about 20 miles of large consuming centers into farms no smaller than 50 acres.

The agricultural plan says that redistribution of lands is unnecessary in southern Chile, where farm operations are conducted on a more extensive basis than in the central zone. However, landowners in this region should be encouraged to manage their farms as efficiently as possible. Foreign immigration should be developed in the far south, and steps should be taken to improve the lot of the Indian farmers in Cautín and nearby Provinces.

With reference to the implementation of the land reform program under the agricultural plan, it is of interest to note that, although no step has yet been taken to divide or to limit owners' rights to large holdings, Congress in 1943, even before the final approval of the plan, passed a law (No. 7747) to prevent formation of farms with too small an area. This law, which requires approval of the President of Chile in the case of subdivision of agricultural properties into farms of less than 37 acres in extent, was also designed to avert the use of agricultural land for nonfarming. In practice, however, approval of requests to subdivide farm lands has become routine and many very small, uneconomical plots have been established. Near Santiago, for example, adequate irrigation water is not available for the intensive cultivation required on some of these small holdings.

As noted before, interest in land reform has declined during the last year or two, and more discussion has been directed at the need for a general increase in agricultural production. The theme of the moment stresses the need for all farm owners and rural workers to cooperate in providing a greater supply of food.

Chile possesses an elaborate system of legislation and regulations governing agricultural organization and operations on a wide variety of subjects, including land titles and transfers, inheritance, taxation, water rights, social security, agricultural credit, price fixing, cooperatives, and marketing. All of these are involved to a greater or less extent in the institutional complex surrounding Chile's system of land tenure. Apparently, however, none of this legislation is directed at land reform. Frequent complaint, for instance, is heard that cheap government agricultural credit goes mainly to large landowners

for nonagricultural purposes, whereas small farmers are forced to resort to loan sharks for funds essential to their operations. Large, specialized agricultural cooperatives such as associations of milk producers and fruit growers have succeeded very well in Chile and the government and various religious groups have effectively encouraged small farmers to unite in cooperatives. Medium-sized farmers, however, have displayed little interest in the formation of general cooperatives. The extension service of the Ministry of Agriculture has difficulty in convincing large farmers to change their methods, whereas ambitious small and medium farmers are more amenable to suggestions.

Outlook

Chile's problem of land reform is much simpler that that of less developed countries, and the conservative elements in Chilean society and politics, who are on their guard against hasty and ill-considered changes in institutional patterns, have in the past shown themselves capable of accepting reasonable changes. Large landowners are coming to recognize that they must take voluntary action to improve the condition of the farm worker if this improvement is not to take place in compulsory form.

Chile is a new and growing country. Its process of industrialization is felt to be the best method of obtaining improved land tenure conditions, and any policy or action to improve the productivity and income of industrial labor works to the indirect advantage of the inquilino. Industry offers alternative employment to surplus rural labor, and industrial communities form an attractive market for an intensified agriculture. Care must be taken that increased efficiency of farm labor, through machinery, heavier fertilization, better methods, new crops, etc., compensates for the reduction in the rural labor force. Otherwise agricultural output is likely to decline. Chile, with the aid of the Export-Import Bank, is setting up a new steel industry, which will contribute significantly to the cause of land reform, and any further assistance to Chile in the establishment of new industries will also work in this direction. Development of agricultural mechanization and agricultural processing plants in rural regions will facilitate the industrialization process and will lessen the technological disparity between urban and rural workers.

The oxcart still has its place on the estates of Chile despite the interest of landowners in motor transportation.

Krilium

By R. Q. PARKS

Krilium, a new soil conditioning preparation, has aroused an unusual amount of interest throughout the world, for it can make tight, gummy clays as friable and crumblike as good garden soil. It is manufactured by one of the leading chemical companies in the United States, and eventually it will be made available to both foreign and domestic markets.

As yet Krilium is not on the market. When it does put in its appearance there, however, it will probably be too expensive in the beginning for general agricultural use. There are, however, a number of specialized agricultural uses for which the material should be practical—for preparing potting soils, for growing flowers and vegetables in greenhouses, for improving home flower and vegetable gardens located on heavy soils, and possibly for developing certain market garden areas where high-value specialty crops are grown. Another field of economic utilization that is promising is in the stabilizing of soil on road cuts and in similar engineering projects.

Krilium, a pale yellow powder, is a soil conditioner, not a fertilizer. But it does change the physical structure of the soil and by so doing may make the plant nutrients already in the soil, as well as the nutrients in fertilizers, more useful to growing plants. Krilium improves soil structure by aggregating and loosely cementing clay particles together, affecting the soil in much the same way as decomposing organic matter does. Yet the new compound decomposes in the soil very slowly, at a rate that has not yet been determined. Krilium must dissolve in the soil moisture to become effective, but it does not move or leach below the zone of application; for that reason its effectiveness below the plow depth will be somewhat limited.

Chemically, this material is a sodium salt of a hydrolyzed polyacrylonitrile. It is a long-chain, organic molecule, somewhat similar in structure to the nylon molecule, and it is nontoxic at the rates of application that are suggested for its use.

During the 1951 growing season, preliminary experiments were conducted by the Department of Agriculture on saline and alkaline soils in California, for the purpose of finding out whether Krilium, or compounds closely related to it, could help in reclaiming those soils or in obtaining more nearly normal crop yields from them. Results were favorable: germination rates were much higher and stands of corn showed remarkable improvement. In one experiment, yield increased as much as five times. Other experiments included work at field stations in Alabama, Tennessee, Pennsylvania, and Wisconsin. The work of the season has not yet been fully evaluated, but results have shown that Krilium definitely improves the physical character of heavy clay soils, thereby encouraging greater development of roots. One of its most beneficial effects is that it makes for better aeration, which is necessary for normal root development.

Best results are obtained when Krilium is applied to a soil that has already been prepared for seeding. The dry powder should be spread uniformly and should be *immediately incorporated* to the desired depth by any method that thoroughly mixes the soil and the conditioner.

Rates of application range from about 400 to 2,000 pounds per acre when the conditioner is incorporated in the soil to a depth of 6 inches. At that depth, 1,000 pounds will probably constitute a representative rate if the material is uniformly distributed throughout the soil. Correspondingly lower rates of course would be used for treating shallower depths of soil—for such purposes, for example, as improving the germination and emergence of seeds by preventing the soil from crusting or sealing over. For improving garden plots, Krilium should be mixed thoroughly to spade depth, at a rate of about 0.1 percent, or 1 pound to each 20 square feet. For potting soil, 1 or 2 ounces of Krilium, well mixed with about 100 to 150 pounds of soil, should be adequate. For preventing erosion along road cuts and similar places, 1 pound per 100 square feet, or about 400 pounds per acre, applied on the surfaces would serve to hold the soil while turf is being established from seed. In this last-named use, stirring of the soil is not necessary after the conditioner has been applied.

Further information on Krilium will no doubt be forthcoming as the Department of Agriculture and various State agricultural experiment stations continue and expand their research work on new soil conditioners.

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European Trade Liberalization Under OEEC

By ELFRIEDE KRAUSE

A specific program of trade liberalization was adopted in 1949 by the countries participating in the Organization for European Economic Cooperation (OEEC), pursuant to the convention these countries concluded in 1948 and under which Marshall Plan aid from the United States was extended. The convention, among other things, provided for economic cooperation among the countries, including relaxation of restrictions on trade and payments. The following article gives an account of the provisions and the progress of the liberalization program to date. It will thus present the framework in which liberalization for agricultural products specifically is to be discussed in a second article.

The Convention for European Economic Cooperation signed in Paris on April 16, 1948, included the provision that participating countries "will cooperate in relaxing restrictions on trade and payments between one another, with the object of abolishing as soon as possible those restrictions which at present hamper such trade and payments."

During the first year of the European Recovery Program an attempt was made to overcome payments difficulties by establishing an intra-European payments agreement, but no direct effort was made to abolish trade restrictions until the summer of 1949, when a program of liberalization of trade between member countries was decided on. The resultant Code of Liberalization provides for the progressive elimination of quantitative restrictions on imports on private account from other members of the Organization for European Economic Cooperation (OEEC) and their overseas territories, as well as reductions in quantitative restrictions on invisible transactions and removal of discrimination by each member country against any of the others.[1]

Quantitative restrictions on imports were widely adopted in Europe during the depression of the 1930's, along with exchange control, bilateral trade, clearing agreements, and sometimes state import monopolies. During the war, controls were intensified, with the government taking over a large part of foreign trade. State trading of some commodities, particularly agricultural products and raw materials, has continued since the war, but the Code of Liberalization makes no attempt to tackle this problem. Furthermore, other practices restricting trade such as export prohibitions and controls, dual pricing, subsidies, and discriminatory excise taxes are not or are barely touched on in the code. This is also true of the problem of excessive tariffs, although the code does have specific provisions relating to this question. (See "Import Duties" below.) The payments agreements under the OEEC, in particular the European Payments Union (EPU) established in September 1950, did, however, result in a relaxation of foreign exchange controls.

The liberalization program as it was developed under the code, even if completely successful, would eliminate only one of several barriers to intra-European trade. The shortcomings of this program have been recognized by OEEC and have led to consideration of a more fundamental approach to the problem, a broader form of "liberalization" generally referred to as European economic integration. This approach envisages the creation of a single European market, with ultimate abolition of all trade barriers. Three plans for such integration, submitted by representatives from the Netherlands, Italy, and France (Stikker, Pella, and Petsche), have been the subject of quite intensive study by OEEC. The Schuman Plan for integration of the coal and steel industry and the plans for agricultural integration (now in the beginning stages of discussion) represent efforts to achieve the same goal step by step.

This article deals with the OEEC liberalization program of the past 2½ years, including the EPU to the extent that its provisions and problems cannot be disassociated from those of liberalization. A study of the difficulties that have been encountered in carrying out this limited liberalization program should also be of interest in any consideration of the broader problem of economic integration.

[1] In 1948 OEEC member countries imported commodities valued at a total of $25 billion from all sources, of which $9 billion came from member countries and their overseas territories; 90 percent of this latter figure represented trade in commodities that, as of May 1950, were imported on private account. (With respect to agricultural products alone, only 78 percent was on private account.)

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Liberalization Program

Chronology. On July 4, 1949, the OEEC Council decided on a program designed to achieve "as complete a liberalization of intra-European trade as possible by 1951." The successive stages of liberalization of trade from then on were as follows:

(1) Member countries were given until October 1, 1949, to submit to OEEC lists of commodities on which they had eliminated quantitative restrictions on imports from other member countries unilaterally, as well as lists of commodities on which they would consider lifting restrictions if other countries would take similar action. According to the lists submitted, roughly 30 percent of the total trade among member countries was free of quantitative restrictions by that time, partly as a result of this action by OEEC.

(2) Participating countries agreed that by December 15, 1949, at least 50 percent of their imports on private account from other member countries would be free of quantitative restrictions. This percentage was to apply separately to each of the following categories: I: food and agricultural products (excluding fibers), II: raw materials, and III: manufactured goods.

(3) In January 1950 it was decided to raise the percentage to 60, to be effective as soon as a satisfactory intra-European payments scheme could replace the existing agreement, under which most payments were still on a bilateral basis. This percentage was also to apply to each of the three commodity categories separately. The European Payments Union was established in the summer of 1950, and the effective date of this 60-percent liberalization stage was ultimately set for October 4, 1950. Some countries were able to go from the 50 to 60 percent stage without liberalizing additional commodities merely by extending existing measures to countries to which they had formerly not been applied because of balance-of-payments difficulties.

(4) Member countries were required to discontinue discrimination as between one member country and another (with certain exceptions) as from January 1, 1951, in the case of liberalized commodities, and as from February 1, 1951, in the case of all commodities. Until then, discrimination for balance-of-payments reasons had been permitted, but the European Payments Union eliminated this justification.

(5) Also as from February 1, 1951, the liberalization percentage was raised to 75 percent. This applied, however, to the total of the three categories, with an unchanged minimum of 60 percent in any one of them. It is interesting, from the agricultural point of view, to note that the reason for this variation in procedure was the difficulty of raising the minimum requirements for category I products.

(6) The 60-percent stage was required to be "consolidated" as from April 30, 1951. Consolidation in this context means freezing the liberalization of specific commodities, in that once certain liberalized commodities are placed on the consolidated list, none of them can be withdrawn or suspended except under special conditions—the same conditions under which suspension of liberalization measures in general is provided for. (In the case of commodities liberalized but not consolidated, a shift in liberalization as among commodities is permitted, as long as the total liberalization percentage is not reduced.)

(7) In the spring of 1951 a "common list" of products to be freed of quantitative restrictions by all member countries alike was agreed upon, but this agreement did not become effective until August 15, 1951. By far the most important group of commodities on this list related to the textile industry—from raw fibers to ready-made clothing, even including textile machinery. Some category I products were also on the list.[2] This list was obligatory for all member countries except those that had partially or completely suspended liberalization with the consent of OEEC, or had presented satisfactory justification for nonliberalization of specific items.

(8) As from September 1, 1951, member countries were to be ready to justify to OEEC not only items on the common list that they had not liberalized, but any quantitative restrictions still in force.

(9) Negotiations are under way for extending the common list to additional commodities.

Not all countries have complied with the above timetable. In fact, at present 9 out of 16 member countries have been exempted from complying with the requirement of 75-percent liberalization and of the common list. This is discussed below.

Definition of liberalization. In the sense of the OEEC Code of Liberalization a commodity is considered liberalized if it can be imported privately without license or with license automatically and immediately issued. Automatic allocation of the foreign currencies required to pay for such imports must also be provided for. The liberalization measures taken must apply to commodities originating in or consigned from other member countries and their overseas territories, but no country is to be barred from extending OEEC liberalization measures to countries outside the OEEC area. Elimination of quantitative restrictions on imports within the limits of global quotas or financial ceilings is not considered liberalization in the sense of the code.

The liberalization of invisible transactions between member countries is also being accomplished by stages, as in the case of the liberalization of trade. Included in the code is a provision for abolition of restrictions on all current invisible transactions connected with the movement of liberalized commodities.

How percentages of trade liberalized are computed. The base year to which the percentage of commodi-

[2] Namely, oilcakes and meal, other feedstuffs, unmanufactured tobacco, canned or dehydrated vegetables, fresh citrus fruits, casings, cheese, vegetable and grass seed, gelatines and glues, casein and albumin, most dried fruits (except figs), and nuts. Private trade in these commodities represented roughly 15 percent of *total* private trade in category I products in 1948.

ties liberalized applies has in all stages been 1948, except in the case of Western Germany, for which the period October 1, 1948, to September 30, 1949, has been used, since its trade in 1948 was farther below normal than that of other countries. The percentage is computed as follows: Value of imports of (now) liberalized commodities from member countries in base year in percent of value of total imports from member countries in base year, excluding commodities (now) imported on government account. The same computation is made for each of the three categories of commodities.

The percentage system used has some defects. For example, a country in which imports on government account constitute a large share of the total (and total private imports are consequently relatively small) may achieve a high percentage of liberalization, in the terms of the code and, at the same time, have a small percentage of its total trade liberalized; the latter figure would, of course, be more significant.

A further peculiarity of the percentage scheme arises from the fact that in 1948, used as the base period, the composition and level of intra-European trade were still not "normal." Countries had little inducement to liberalize commodities, imports of which had been abnormally small in the base year, since their liberalization would scarcely affect the percentage achieved. Butter and cheese are cases in point. Conversely, commodities imported on an abnormally large scale in the base year could be liberalized with little effect on trade.

State trading. Although trade by government monopolies is not affected by the liberalization program, the code provides that such monopolies must conduct trade in accordance with the principles laid down in the Havana Charter. These include the provision that imports should be made in accordance with the commercial considerations that normally govern private trade—that is, they should be on a nondiscriminatory basis—and the provision that imports should be sufficient to satisfy the full domestic demand for the imported product. In practice, little effort appears to have been made to insure the observance of these requirements.

Application of liberalization to overseas territories. Liberalization measures taken by member countries must also apply to imports originating in or consigned from the overseas territories of other member countries, but these overseas territories do not automatically apply the same liberalization measures as their mother countries to imports from other member countries. The code is rather vague on this point, providing merely that member countries should examine "to what extent and within what period the measures of liberalization they take may be applied within their overseas territories."

Import duties. OEEC itself has no facilities for bringing about a general reduction in excessive tariffs, but the code requires members to take full account of their obligations under the General Agreement on Tariffs and Trade (GATT). All member countries except Switzerland, Portugal, Ireland, and Iceland are parties to GATT.

At the time the 75-percent stage of liberalization was decided upon, OEEC Council passed a resolution that, in effect, provided for reconsideration of its decision to achieve this stage of liberalization in case the negotiations at Torquay did not result in "the signature of a further protocol to that Agreement (GATT) incorporating negotiated concessions in respect of customs tariffs affecting intra-European trade." The Torquay protocol has in the meantime been signed by all OEEC member countries participating.

The Code of Liberalization does, however, provide a procedure for complaints against other member countries regarding excessive import duties on, or internal arrangements concerning, specific liberalized commodities, which might offset the benefits of liberalization. If OEEC decides that the complaints are justified, it may rule that the liberalized commodities affected by excessive duties will not be counted in the computation of liberalization percentages; however, the country against which the complaint was made is then free to deliberalize the commodities concerned. By the fall of 1950 a total of nearly 500 complaints concerning excessive tariffs on liberalized items had been registered. Action by OEEC was dropped pending possible action under GATT.

A special working party was set up under GATT early in 1951 to consider the problem of the disparity of European tariffs and several sessions have been held since then. At a recent OEEC council meeting it was suggested that, if this working party did not reach a final conclusion within a reasonable period, OEEC itself should consider taking action in this field.

Export controls. The Code of Liberalization in its present version makes no provision for eliminating export controls. During the past year OEEC

made a study of export restrictions by member countries and their overseas territories and recently issued a report, but no decision has as yet been reached as to how such restrictions should be dealt with, if at all. As a result of shortages due to the Korean war, export controls have actually increased since the liberalization program has been in effect.

Harmonization of internal policies. Member countries should, according to the code, "compare their financial, economic, social, tariff and investment policies with a view to achieving such harmonization as may appear necessary in order to arrive at a close economic and monetary association between them." Numerous questionnaires have been sent out to the member countries and studies made by OEEC committees, but this provision has as yet had little practical effect.

Exemption from obligations of liberalization. The conditions under which a member country may suspend part or all of its liberalization measures are (1) an economic and financial situation within the country that justifies such a course, (2) a serious economic disturbance in the member country as a result of any liberalization measure that justifies suspension of this particular measure, (3) a rapidly increasing deficit in the European Payments Union. In addition, Austria and Greece were specifically exempted from the obligation to liberalize, pending their becoming full-fledged members of the EPU. Unnecessary damage to the economic and commercial interests of other member countries must be avoided in the suspension of liberalization measures.

Liberalization and European Payments Union

The existence of a multilateral payments system, supported by adequate domestic policies, is the most important prerequisite for the success of the liberalization program. During the early stages of the program, while payments were made under the terms of the intra-European payments agreement of 1949-50, which did little to remove the straitjacket of bilateral payments, balance-of-payments difficulties were still serious. For this reason the code permitted discrimination on account of these difficulties.

The European Payments Union was established in September 1950, retroactive to July 1, 1950, for all countries except Switzerland, which joined it November 1, 1950. Its first objective was the facilitation of "the largest possible measure of liberalization of trade among the member countries." Under this truly multilateral payments system (limited, however, to the member countries and their associated monetary areas), a deficit or credit in trade with one of these countries no longer resulted in restrictions on imports from or exports to that country.

It was, of course, still necessary for each country to keep its debtor or creditor position with EPU, that is, with the entire group of OEEC countries and their associated monetary areas within the limits provided under the terms of the agreement.[3] While this was easier for each country than maintaining numerous bilateral relationships, it has proved difficult to maintain deficit and credit balances with EPU within the prescribed limits.

Since its establishment, EPU has undergone several crises, the most serious being Western Germany's deficit position early in 1951, the Netherlands deficit a few months later, Belgium's excessive creditor position during most of 1951 up to the present, and the current United Kingdom and French deficits. Western Germany's deficit was overcome within a few months through an increase in exports and a restriction of imports, partly due to the special measures taken. These measures included temporary suspension of liberalization, internal restrictive credit policy, extension of a special credit by EPU, and subsequently an increase in its

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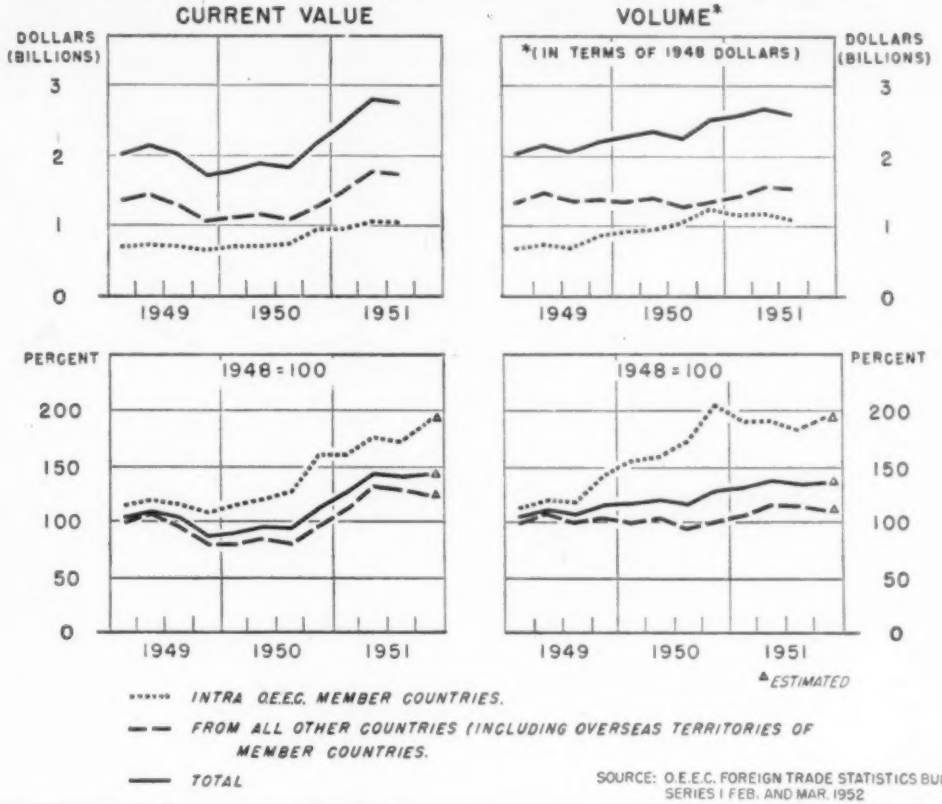
[3] Each member was allotted a quota equivalent to about 15 percent of its payments and receipts on current account with all other members and their associated monetary areas during 1949. This quota represents the maximum extent to which the member's cumulative surplus or deficit position may be settled through the facilities of the Union. Within this quota, surpluses and deficits are covered by credit and gold movements in fixed proportions, depending on how much of the quota has been used. In practice, when surpluses have been in excess of quotas, special arrangements have been made to handle payments through the Union. Initial debit balances (covered by conditional aid from the U.S.) were established for "structural" creditor countries in intra-European payments, while initial credit balances (as grants or loans from the U.S. through the EPU) were set up for structural debtor countries. An operating fund of $350 million was made available to the European Payments Union by the United States to be used for establishing a capital fund, in addition to covering the excess of initial credit balances over initial debit balances.

The European Payments Union is administered by a Managing Board under the direction of the OEEC Council. The Bank for International Settlements acts as the agent of EPU in the clearing of accounts between member countries.

quota, which, based as it was on a period of abnormally low trade, had, it was generally agreed, been too low. Similar measures were taken in the case of the Netherlands, and both countries now have small credit balances. The credit balances of Belgium, as well as those of several other countries, have considerably exceeded their original quotas (Belgium by around 100 percent), special arrangements being made to cover them. The United Kingdom, in November 1951, suspended a considerable part of its liberalization measures, and, in February 1952, France suspended all liberalization measures. Both countries are taking internal measures to overcome their difficulties, but under the most favorable circumstances it will probably be some months before they can again take their full part in the liberalization effort.

The EPU has played an indispensable role in enabling trade within Europe to develop to the extent it has during the past 1½ years, but it has obviously not sufficed to enable liberalization to the extent provided for in the program. In fact, it would seem that the efforts made by member countries to live up to the requirements of the liberalization program have been in some measure responsible for the crisis confronting the Payments Union.

According to the terms of the Code of Liberalization, each member country is at present required to have liberalized 75 percent of its total private imports, with a minimum of 60 percent in each of the three categories, to have consolidated the liberalization of 60 percent of its imports, and to have liberalized all the items on the common list, except in special circumstances under which "derogation" is permitted. As the situation stands, all of the countries are considered to be living up to the code. Nevertheless, 9 of the 16 member countries have failed to reach the 75-percent stage of liberalization,



which is supposed to be effective at this time, or had reached it and subsequently suspended some of their measures—this with the consent of OEEC under the terms of the code permitting derogation. The primary cause of these derogations has in each case been balance-of-payments difficulties. These countries are also exempted from complying with the provisions concerning consolidation and the common list. As of the end of March, only 4 countries had liberalized 90 percent or more of the products on the common list.

In spite of current difficulties, negotiations are under way to extend the common liberalization list to further products. Some members feel that there is little point in extending the common list while the first one is applied to so few countries; others insist that they had agreed to the first list only on condition that a subsequent, more balanced list would be agreed upon, which would contain in particular certain agricultural and engineering products. Some countries contend that the common lists should not be subject to suspension by individual countries even for balance-of-payments reasons.

It is unfortunate that each deficit crisis in the EPU results in partial or complete suspension of liberalization measures by the deficit country. But there is a great advantage to European cooperation and European trade as a whole in having the organization and code under which other member countries assist the deficit countries to correct deficits and especially to increase their exports, rather than retaliate by likewise limiting imports—in other words, facilitating an expansionist, in preference to a restrictionist, solution. It has thus been possible to cushion the effects of currency difficulties encountered by some member countries and help solve the problems that brought them about.

There has been an appreciable increase in trade within the OEEC area since the beginning of the liberalization program, in particular since the formation of the EPU. It is impossible, however, to determine quantitatively to what extent the liberalization program and the EPU influenced this development, as other factors, notably the devaluation of currencies in the fall of 1949, the increase in demand and prices that followed the outbreak of the Korean war, and the rise in European production during this period, were also greatly significant.

The EPU was originally established to operate for a trial period of 2 years, ending June 30, 1952. Discussions are under way in Paris on plans for its continuance. The outlook for the future of the liberalization effort depends to a great extent on whether the Union is able to weather the current crisis; for the immediate future this depends on the success of the United Kingdom and France in solving their economic and financial problems, which were intensified by the rearmament program.

On a more basic consideration, there is of course nothing surprising in the lack of balance within the OEEC area, either of trade or of payments. This area, even with the inclusion of the nonmember sterling area, is not and cannot be a closed economy, but is dependent on trade outside the system, especially with the dollar area. It is therefore not so much the deficit and surplus positions in EPU that develop and assert themselves that give cause for alarm, but rather it is the fact that the countries cannot yet meet such deficits from their own resources by settlement in gold or dollars. Overall imbalance in EPU is therefore not the real problem; and the inability of the deficit countries to settle their EPU deficits is just one aspect of the broader fact that, while much progress has been made in its correction, general economic imbalance still persists throughout the world.

TABLE I.—*Percent of total private imports liberalized in each category, by country*

Country	Food and agricultural products (exc. fiber)	Raw materials	Manufactured goods	Total
Countries with 75 percent or more liberalization:				
Belgium-Luxemburg	60	82	78	[1]75 (90)
Ireland	72	91	71	75
Italy	73	82	66	[1]76 (98)
Netherlands	60	94	65	75
Portugal	75	79	86	[1]83 (100)
Sweden	61	99	63	75
Switzerland	62	81	76	[1]75 (85)
Countries with less than 75 percent liberalization:				
Austria	0	0	0	0
Denmark	60	86	50	65
France	[2]0 (65)	[2]0 (90)	[2]0 (64)	[2]0 (76)
Western Germany	66	74	70	[3]70
Greece	0	0	0	0
Iceland	51	61	24	41
Norway	75	87	63	68
Turkey	75	64	63	63
United Kingdom	[2]50 (78)	[2]57 (94)	[2]23 (88)	[2]46 (90)

[1] Figures in parentheses are the current *de facto* liberalization percentages, i.e., the percentages on which these countries for the time being require no import permits or claim to issue them without restriction; only the liberalization percentages not in parentheses have, however, been officially notified to the OEEC.

[2] Figures in parentheses are the percentages liberalized before the recent suspension of liberalization measures.

[3] Western Germany has in the meantime declared its intention of raising this percentage to 75 on April 1, but details are not yet available.

India Fights a Land Invader

Part of a determined nation's efforts to grow more food.

by F. L. TIMMONS

India has a weed common to no other part of the earth—kans grass. Some 10 million acres of once richly productive cropland—an area twice the size of New Jersey—has been invaded and much of it completely taken over by this weed.

Most of the kans-infested land is privately owned. But this choked-off land is more than a personal loss to the landowners. As a country so in need of every acre of land to relieve the critical shortage of food, India recognizes this loss of land as a national calamity. And the government is making a determined effort to reclaim those millions of acres.

Kans grass *(Saccharum spontaneum)* is an aggressive, perennial, unpalatable species of wild sugarcane. In fact, it is so unpalatable that it is left strictly alone by cattle and goats, even during periods of severe food shortage. The root system is quite similar to that of Johnson grass *(Sorghum halepense)*, a perennial species of sorghum that is a troublesome weed problem in southern United States.

The aggressive nature of kans is evidenced by its extensive system of rootstocks and roots. While its rootstocks normally penetrate to a depth of about 3 feet, the roots sometimes reach a depth of 12 feet or more. It is reported that kans roots have been found more than 30 feet deep.

When kans grass matures seed in October, the masses of white fleecy heads dominate the landscape and it is said that "clouds" of very small floss-borne seeds can be seen floating in the air.

Kans is reported to occur throughout India under varied conditions at altitudes of sea level to 6,000 feet, but it is a serious problem only on the deep silty clay loam or black "cotton" soils in north central India.

The peasant farmer for generations has tried to fight kans. But experience showed that his primitive bullock-drawn wooden plows, which scarcely penetrate more than 3 inches of topsoil and do not cut off the kans plants, were no match for the weed. So in 1947—the year India gained its independence—the government's Central Tractor Organization began to experiment with kans eradication through the use of war-surplus mechanized deep-plowing equipment. The land was plowed 12-14 inches deep during the dry season, January to May. By the end of 1949, 104,560 acres of kans-infested land had been plowed and made productive again.

India's Government then made the project a part of its Grow More Food program and launched an all-out campaign to rid the country of the persistent weed.

The International Bank loaned $8.5 million to the Government of India for the purchase of tractors and other implements needed for land reclamation. Tractors were imported from the United States and huge plows, root cutters, tree stumpers, and push rakes were obtained from England.

One of India's Central Tractor Organization units plowing kans-infested farm land to control the weed.

Mr. Timmons is Senior Agronomist, Division of Weed Investigations, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, Logan, Utah. He spent most of December, January, and February in India, working on the kans-grass project.

In its fight against kans grass, India has replaced the bullock-drawn wooden plow with tractors and steel plows.

With the heavy mechanized equipment came 6 manufacturer's representatives skilled in its operation and maintenance. They were joined by 2 Indian mechanization experts and 150 young Indian trainees.

Many of the young Indians had never had any experience in operating mechanized equipment; some had never seen a tractor. Yet, after a 3-week instruction course, they were at the controls. Thus, on February 18, 1950, the first of India's big land reclamation projects was launched at Bari.

The acreage plowed totaled 80,000 in 1950 and 282,000 in 1951. Approximately 40 percent of this land had been completely nonproductive because of kans infestation. The increased production of food crops from the plowed acreage since 1949 is conservatively estimated at 200,000 tons and would probably have been doubled had there been normal rainfall for the 1951-52 crop.

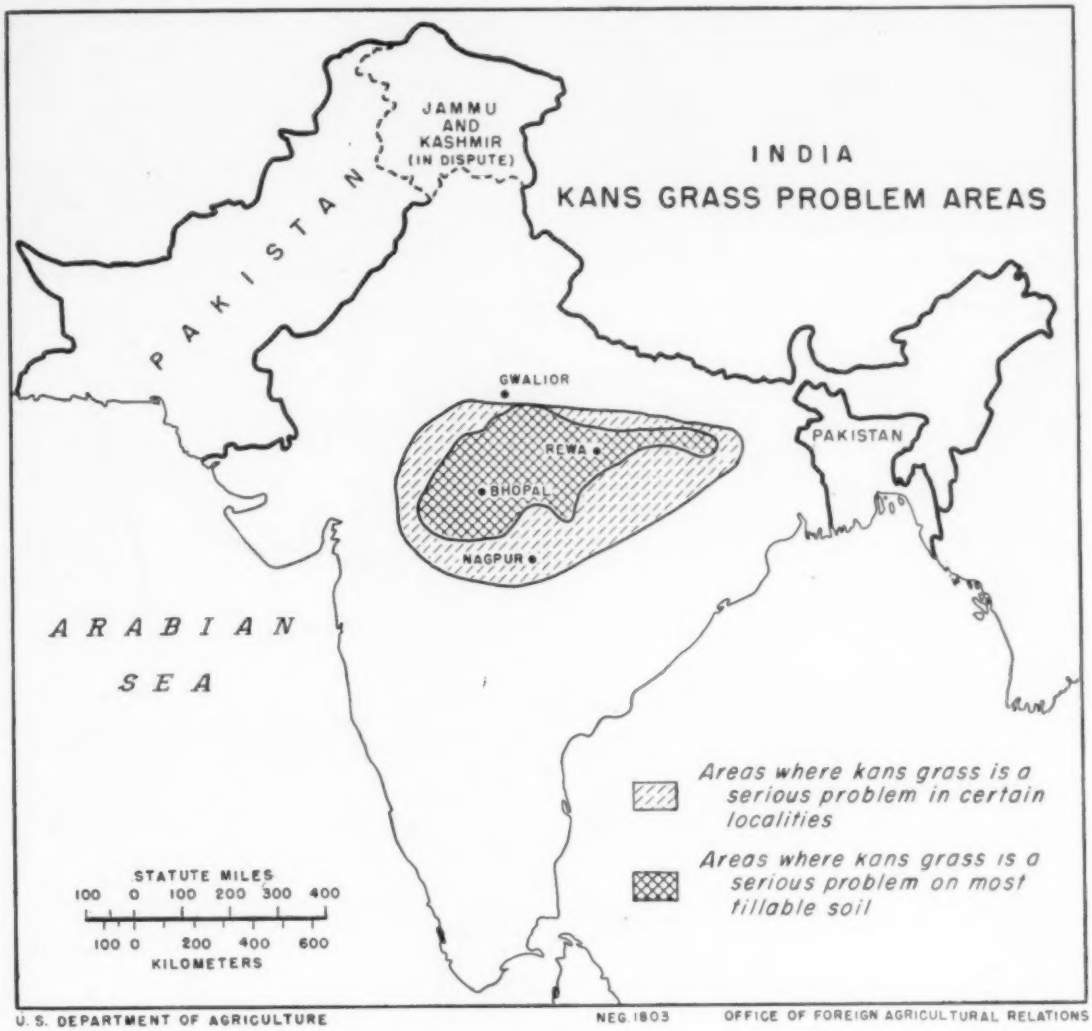
The battle against kans will not be won quickly. It is a costly project and there are many obstacles and difficulties. Only 2 million acres of the kans-infested and completely derelict lands are in blocks large enough for efficient and economical deep plowing with large tractors. That leaves 8 million acres on which the kans must be reduced and eradicated by the less effective shallower plowing with the smaller state and privately owned tractors or by shallow cultivation with bullock- or tractor-drawn implements. The cost of deep plowing with large CTO outfits averages about $11 per acre. The cost for shallower small-area plowing with smaller tractors runs $5 to $7 per acre. Clearing the land of scrub jungle for efficient moldboard plowing is necessary on about 20 percent of the acreage and the cost is running as high as $28 per acre. The considerable breakage of plows by tree roots and stumps adds to the cost.

Deep plowing, in some cases preceded by land clearing, is a necessary first step in eradicating kans where the land has become unsuitable for cultivation with ordinary bullock-drawn implements. However, it is only the first step. Experience during the past 4 years has shown that where deep plowing was not followed up by suitable shallow cultivation practices between crops the weed recovered rapidly. Experiments and field-scale demonstrations at three widely separated experiment stations in India's kans belt have shown that the stubborn weed can be completely eradicated by frequent shallow cultivation during an 8-month period from November to June with the common bakhar (blade) harrow or other

improved bullock-drawn implements. This procedure can be used where there is no scrub jungle or other obstructions and it does not require previous deep plowing. The method of frequent shallow cultivation is not generally used or even known by Indian farmers.

One of the obstacles that contributes to the slowness of kans control operations is the monsoon. The torrential rains usually last about 3 months and the soil below the surface few inches remains wet for 7 or 8 months. Deep plowing is effective only during a 4- to 5-month season. However, shallow cultivation can be done during an 8-month season.

But despite the many handicaps, India is continuing and expanding its kans eradication project. Education programs are being carried on, including training schools in the operation and maintenance of tractors and other modern motor equipment. Programs are being planned for the education of individual farmers to show the importance of follow-up shallow-blade cultivation after the CTO has cleared and plowed the land and the effectiveness of frequent shallow cultivation, even on land that has not been plowed. New implements are being tested for applicability in uprooting kans and associated scrub jungle. For example, it is hoped that a heavy disk plow, now being tested, will at least partially eliminate the plow-breakage problem.



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The rootstocks of kans grass generally penetrate to a depth of 3 feet; the roots sometimes reach 12 feet or more.

Studies and exploratory experiments in the use of chemicals for kans control are being conducted.

The Government of India has enlisted the support of the Point Four program in carrying on many of the kans control activities. A United States Department of Agriculture technician, for example, is supervising the training of farm machinery operators. Other American Point Four technicians have been called on by the Indian Government for advice and assistance in improving present control operations.

The goal of the CTO is the deep plowing of about 300,000 acres of kans and jungle land each year. At this rate, it is hoped that within 7 years at least 2 million of the 10 million acres of kans land will be providing food to help alleviate future food famines in India. If the Indian farmer can be encouraged to persevere in the practice of frequent shallow cultivation, to make generous use of bullock power or, wherever possible, of the small tractors that are becoming available in ever growing numbers, India's Grow More Food program will be greatly benefited —benefited by using resources that the country already has.

For control of kans grass, India's research workers are experimenting with chemicals.

Kadang-Kadang Disease of Coconuts in the Philippines

By DONALD DE LEON

Philippine and United States scientists are working together to find the cause and cure for a unique disease that is cutting coconut production in the Bicol region of the Philippines. The disease, called yellow mottled or infectious kadang-kadang, attacks only bearing trees. It lowers nut production and finally kills the tree. The disease is apparently peculiar to the Bicol; it has never been found in any other part of the world.

Both the Philippine and the United States Governments are highly interested in controlling kadang-kadang, for nearly 10 percent of the Islands' coconuts come from the Bicol and virtually all of the United States imports of coconuts, coconut oil, and copra come from the Philippines.

The disease has been known to exist for many years but it was not until last year that a fairly accurate estimate of its ravages was made. A survey of the extent of damage was completed in July by members of the kadang-kadang laboratory of the Philippine Bureau of Plant Industry. This survey showed that more than 1.5 million bearing coconut trees were dying from the disease and that it is spreading steadily. It is conservatively estimated that the loss in nuts is costing the Bicol region more than $1.8 million annually.

The first observable symptom of the disease is a reduction in the size and number of nuts that a tree produces. As the disease progresses there are fewer and fewer nuts on the tree, until finally none is produced. When nut production first begins to lessen, the lower leaves of the tree become a mottled bronze yellow especially at the tip of the leaflets. The three or four youngest leaves remain a normal green, which contrasts sharply with the yellowed older leaves below. It is not until the tree has been diseased for 4 or 5 years and the leaves are very much shorter than normal that the youngest leaves become even slightly yellowish. Trees having yellow but normal length younger leaves are not affected by the yellow mottled disease. It is believed that this yellowing is caused by soil conditions. Such trees are frequently seen outside of the Bicol region.

A few scientists believe that the disease may be caused by some such factor as soil deficiency, bacteria, fungi, or mechanical injury caused by insect feeding.

Other scientists suspect the disease is caused by a virus.

Extensive studies have been conducted on these possibilities but so far none has been proved or eliminated.

Nevertheless, scientists have come up with some recommendations:

1. Diseased trees should be cut down as soon as they cease to produce normal-sized nuts;

2. No plantations should be set out in the Bicol until methods have been developed to control the disease; and

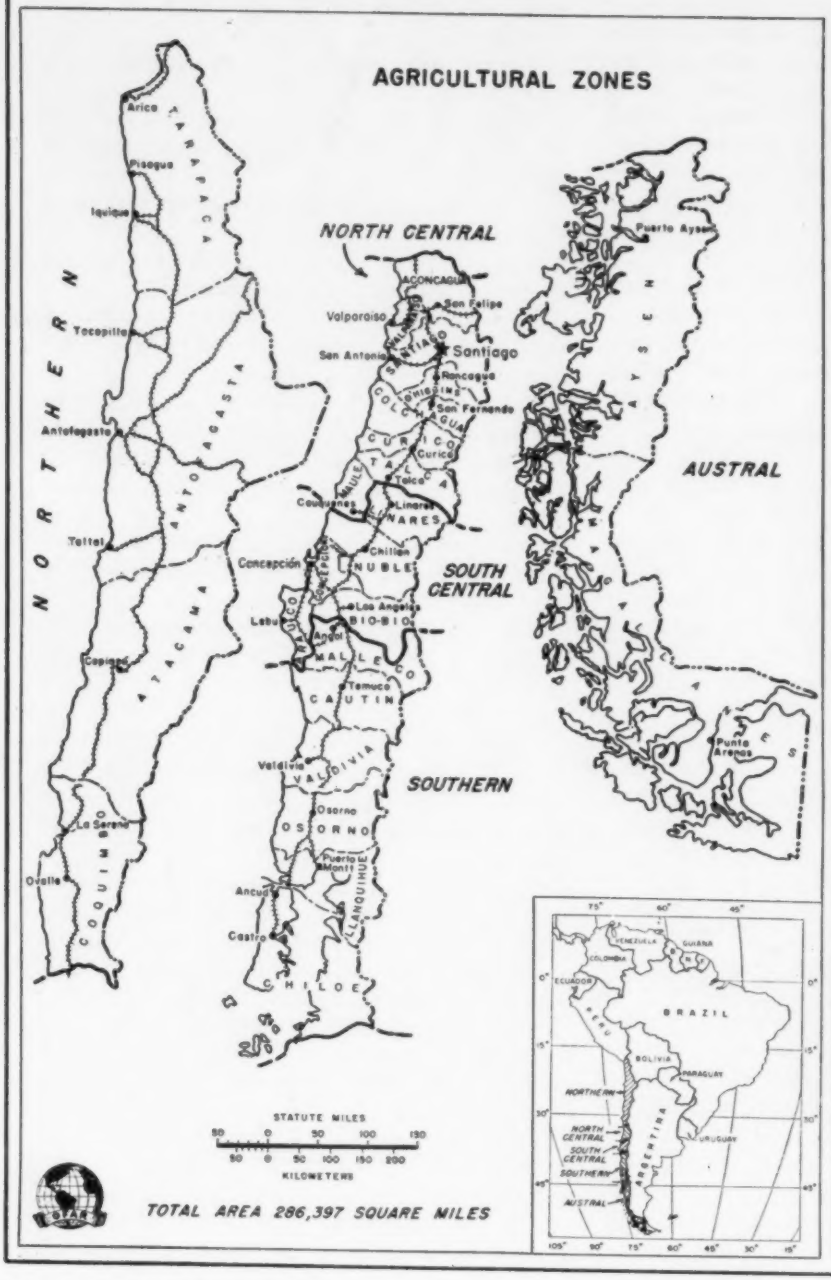
3. Severely affected plantations should be underplanted with some other crops as early as possible; the Provincial Agricultural Supervisor should first be consulted for the best crop for the particular area.

One of the peculiar characteristics of the kadang-kadang disease is that only trees of bearing age have been observed to be killed by it. Once in a while young trees are found with some of the leaf markings that all diseased trees have but these young trees are growing well. No young trees in diseased plantations have been found dying from the disease. It may be that many of these young trees are infected but full symptoms do not develop until the trees reach bearing age. This is a possible factor that may add to the difficulties of the experimental work on the problem.

During the past year and a half, entomologists and plant pathologists of the Philippine Bureau of Plant Industry have done considerable work to determine the cause of kadang-kadang disease. Now, with the assistance of the United States Government the Bureau is sponsoring an enlarged research program that is covering all aspects of the possible cause of the disease in an effort to hasten the solution to this pressing problem.

Dr. de Leon is Foreign Agricultural Adviser to the Philippine Government, Manila.

CHILE: AGRICULTURAL ZONES AND ANNUAL RAINFALL



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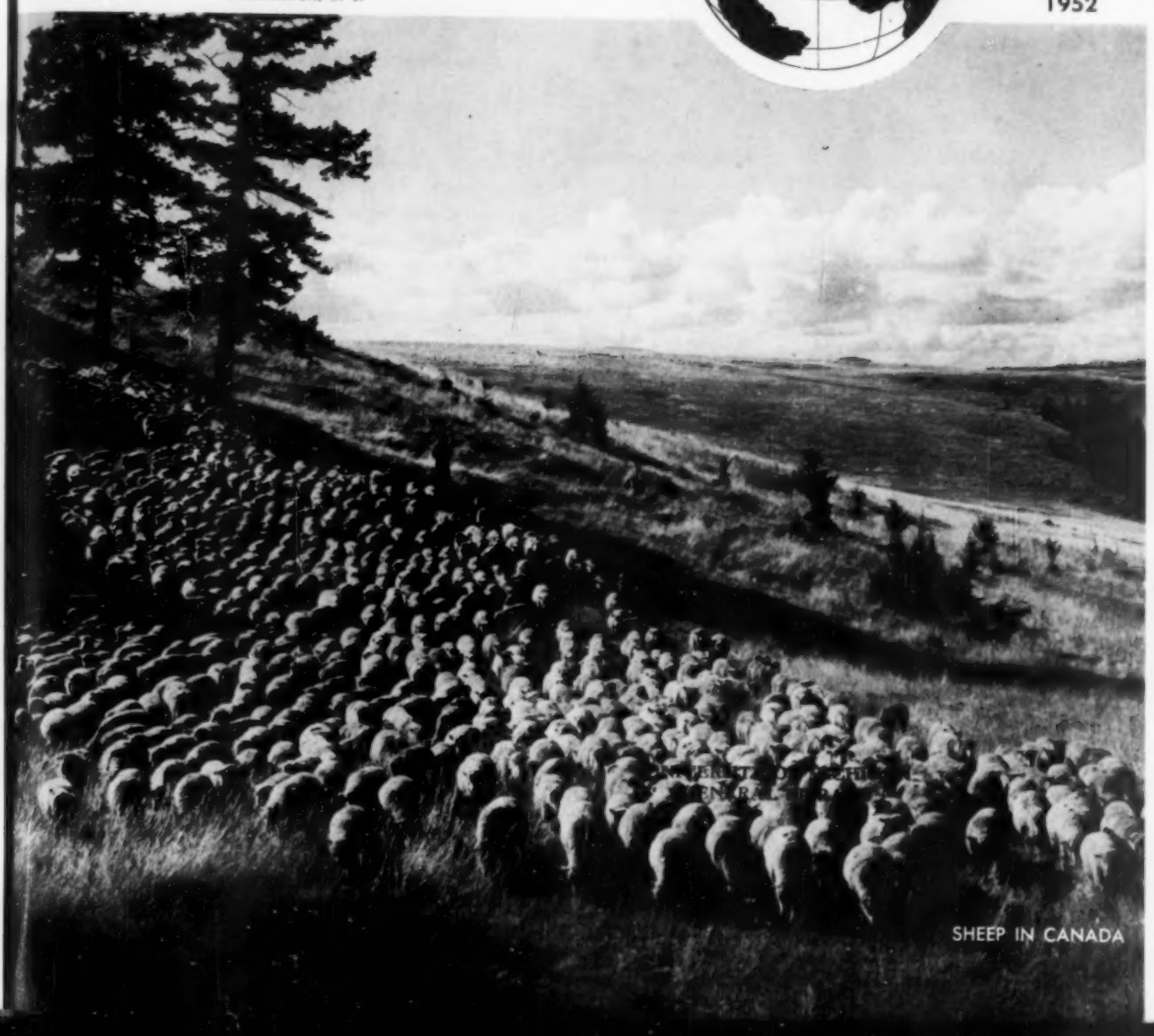

SHEEP IN CANADA